Title 117 - NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 2 - APPLICATION OF STANDARDS

001 These standards shall apply at all times to all surface waters of the State except where noted below. Impounded waters designated by the Department as wastewater treatment facilities, wastewater retention facilities, or irrigation reuse pits are by definition (Chapter 1) not surface waters, thus standards do not apply to these waters.

002 The water quality criteria which may be necessary to protect downstream beneficial uses shall be applicable to all surface waters, whether or not those beneficial uses are assigned to a given water body in these Standards.

003 The application of standards for streams shall be in accordance with Chapters 3, 4, and 5.

004 The application of standards for lakes and impounded waters shall be in accordance with Chapters 3, 4, and 6. Lakes and impounded waters not identified in Chapter 6 shall be protected for the assigned beneficial uses of the stream segments (Chapter 5) on which they are located. Water quality criteria associated with such beneficial uses shall be applicable to these lakes and impounded waters.

> 004.01 In lakes and impoundments, or portions thereof, which exhibit natural thermal stratification, all applicable narrative and numerical criteria, with the exception of the numerical criteria for temperature, apply only to the epilimnion. Numerical temperature criteria apply at all depths (epilimnion, metalimnion, and hypolimnion) of lakes and impoundments exhibiting natural thermal stratification. In lakes and impoundments, or portions thereof, not exhibiting natural thermal stratification, the applicable narrative and numerical criteria apply at all depths.

005 The application of standards for wetlands shall be in accordance with Chapters 3 and 7.

006 These standards may be applied through Title 119 - Rules and Regulations Pertaining to the Issuance of Permits Under the National Pollutant Discharge Elimination System and Title 120 - Procedures Pursuant to Section 401 of the Federal Clean Water Act, 33 u.s.c. § 1251 et seq., for Certification by the Department of Activities Requiring a Federal License or Permit which May Result in a Discharge.

007 Narrative and numerical water quality criteria associated with aesthetics (Chapter 4, 005) and general criteria and acute toxicity criteria for protection of aquatic life (Chapter 4, 003) shall apply to all surface waters except as stated below in paragraphs 008, 010, 011, 012, and 013.

008 These standards, except water quality criteria associated with aesthetics (Chapter 4, 005), will not apply to effluents and non-contact cooling water discharges, although these standards are used in deriving effluent limitations pursuant to Title 121 - Effluent Guidelines and Standards.

009 These standards, except narrative and numerical water quality criteria associated with aesthetics (Chapter 4, 005) and general criteria and acute toxicity criteria for protection of aquatic life (Chapter 4, 003), will not apply to:

009.01 Streams assigned a Coldwater Class A, Coldwater Class B, or Warmwater Class A Aquatic Life use during periods when the flow is less than 0.1 cfs or the 7-day 10-year low flow, unless an assigned beneficial use still exists under these conditions. Thirty-day average ammonia criteria will not apply to these streams during periods when the flow is less than 0.1 cfs or the 30-day 5-year low flow unless an assigned beneficial use still exists under these conditions.

009.02 Streams assigned the Warmwater Class B Aquatic Life use during periods when the flow is less than 1.0 cfs, unless an assigned beneficial use still exists under this condition.

009.03 Undesignated surface waters except as necessary to protect assigned downstream beneficial uses. Acute criteria which are applicable to these surface waters shall include those applicable for the Warmwater Class B Aquatic Life use.

009.04 Streams during periods when the instantaneous flow is totally composed of effluent or non-contact cooling water discharges, excluding minor amounts of bank seepage, unless an assigned beneficial use still exists under these conditions.

009.05 Streams during periods when the flow is greater than the 7-day 10 year high flow, unless an assigned beneficial use still exists under these conditions. Thirty-day average ammonia criteria will not apply to streams during periods when the flow is greater than the 30-day 5-year high flow unless an assigned beneficial use still exists under these conditions.

010 These standards, except water quality criteria associated with aesthetics (Chapter 4, 005) and recreation (Chapter 4, 002) will not apply within mixing zones unless specified below.

Mixing zones for the initial assimilation of effluents or wastewaters may be necessary where discharges that have received the applicable level of treatment or control still do not adequately protect the water quality of a receiving stream. Mixing zones shall be limited to as small an area and volume of a receiving stream as is practical to prevent interference with or impairment of any beneficial uses. The requirements of mixing zones for heat shall be defined on a site-specific basis, in a manner consistent with Section 316 of the Clean Water Act.

010.01 The Department shall determine the applicability of a mixing zone, and if applicable, the allowable size, location, water quality, and outfall design. The following requirements shall be used in defining all mixing zones. These requirements are not intended to define each individual mixing zone, but represent maximum limits which will satisfy most biological, chemical, physical, and radiological considerations. A smaller mixing zone may be required or no zone at all allowed, as necessary, in order to meet these requirements.

010.02 The appropriateness, if any, of establishing a mixing zone for a pollutant which may be bioaccumulative, persistent, carcinogenic, mutagenic, or teratogenic shall be carefully evaluated by the Department. In such cases, effects such as potential ground water contamination, known or predicted safe exposure levels for human health, bioaccumulation in aquatic life, fish attraction, sediment deposition, and protection of downstream beneficial uses shall be considered.

010.03 Mixing zones established for dissolved oxygen shall take into account the delayed effects caused by oxidation of organic matter and ammonia inside and outside the mixing zone. One-day minimum dissolved oxygen criteria shall apply at the boundary of and beyond acute mixing zones, but not within acute mixing zones. All applicable dissolved oxygen criteria, including the one-day minimum criteria, shall be met at and beyond the mixing zone boundaries.

010.04 Mixing zones established for discharges impacting agricultural water supply criteria shall be based on the restrictions established for chronic mixing zones (010.06).

010.05 All mixing zone specifications shall be based on critical conditions of minimum dilution. Flow variable calculations that use real-time flows for a point source discharge

and receiving stream may be allowed to determine critical conditions of minimum dilution. If flow variable critical conditions are not defined, critical conditions shall be determined as follows. The average dry weather or seasonal flow for a point source discharge shall be used with the 7-day 10-year low flow of the receiving stream for application of all criteria with the exception of thirty-day average ammonia criteria and acute criteria for aquatic life. The 30-day 5-year low flow of the receiving stream shall be used for application of thirty-day average ammonia criteria. The 1-day 10-year low flow of the receiving stream shall be used for application of acute criteria.

010.06 Chronic Mixing Zones.

Chronic toxicity to aquatic life shall not be allowed at any time outside of a chronic mixing zone.

010.06A The length of a chronic mixing zone shall not exceed the following distances based on designated aquatic life use classes.

010.06A1 Chronic mixing zones in Coldwater Class A, Coldwater Class B, and Warmwater Class B streams shall be designed to not exceed 2,500 feet in length.

010.06A2 Chronic mixing zones in Warmwater Class A streams shall be designed to not exceed 5,000 feet in length.

010.06B Chronic mixing zones shall be located in a receiving stream in such a manner that the maintenance of aquatic life and other beneficial uses will not be adversely affected.

010.06B1 A chronic mixing zone shall not overlap with any other mixing zone unless it is demonstrated to the satisfaction of the Department (e.g. aquatic field studies, bioassays in the site water using resident or acceptable nonresident aquatic species) that the overlapping of the mixing zones will not result in any adverse effects to aquatic life or other beneficial uses.

010.06B2 Chronic mixing zones shall not at any time:

010.06B2a Extend across public drinking water supply intakes.

010.06B2b Extend across heavily-used or state designated recreation bathing areas.

010.06B2c Extend into publicly owned lakes and reservoirs listed in Chapter 6.

010.06B2d Significantly impact federally designated threatened or endangered aquatic species.

010.06C Water quality of chronic mixing zones.

The Department may suspend the applicability of all or part of the water quality criteria within a chronic mixing zone, except those criteria relating to aesthetics (Chapter 4, 005) and acute toxicity to aquatic life (Chapter 4, 003.01C). In streams designated a recreational use, criteria relating to recreation (Chapter 4, 002) shall also apply within a chronic mixing zone. Waters at and beyond chronic mixing zone boundaries shall meet all chronic water quality criteria associated with the receiving stream any time the receiving streamflow is equal to or greater than 0.1 cfs for streams assigned a Coldwater Class A, Coldwater Class B, or Warmwater Class A Aquatic Life use; 1.0 cfs for streams assigned the Warmwater Class B Aquatic Life use; or its 7-day 10-year low flow (30-day 5 year low flow in the case of thirty-day average ammonia criteria), whichever is greater. To prevent chronic toxicity in a stream, the following conditions shall be met.

010.06C1 The pollutant levels or concentrations of wastewaters which contain unknown or complex mixtures of potentially additive or synergistic toxic pollutants shall not exceed 1.0 chronic toxic units (TU_c) based on chronic bioassays representing the effluent dilution received at the chronic mixing zone boundary.

010.06C2 Where more than one wastewater discharge is located in a specific area and the potential exists for additive or synergistic effects, the pollutant levels or concentrations in water from a receiving stream outside any mixing zone shall not exceed 1.0 TU_c based on chronic bioassays.

010.06C3 Where a mixing zone is not allowed by the Department, the pollutant levels or concentrations of the wastewater in the outfall structure itself shall not exceed the No Observed Effect Level (NOEL) based on chronic bioassays of the undiluted effluent.

010.07 Acute Mixing Zones.

Acute toxicity to aquatic life shall not be allowed at any time outside of an acute mixing zone.

010.07A Acute mixing zones shall allow at all times for a continuous zone of passage in the receiving stream for the movement or drift of aquatic biota. To provide for a zone of passage, the width of an acute mixing zone at any transect of the receiving stream shall not exceed more than 1/2 of the stream width. Where more than one wastewater discharge is located in a specific area, acute mixing zones shall be located in such a manner as to provide for a continuous zone of passage of at least 1/2 the stream width.

010.07B The length of an acute mixing zone shall not exceed the following distances based on designated aquatic life use classes.

010.07B1 Acute mixing zones in Coldwater Class A, Coldwater Class B, and Warmwater Class B streams shall be designed to not exceed 125 feet in length or 5 percent of the length of the chronic mixing zone whichever is more restrictive.

010.07B2 Acute mixing zones in Warmwater Class A streams shall be designed to not exceed 250 feet in length or 5 percent of the length of the chronic mixing zone whichever is more restrictive.

010.07C Acute mixing zones shall be located in a receiving stream in such a manner that the maintenance of aquatic life and other beneficial uses will not be adversely affected. Acute mixing zones shall not at any time:

010.07C1 Extend across public drinking water supply intakes.

010.07C2 Extend across heavily-used or state designated recreation bathing areas.

010.07C3 Extend into publicly owned lakes and reservoirs listed in Chapter 6.

010.07C4 Significantly impact federally designated threatened or endangered aquatic species.

010.07C5 Extend across the mouth of a classified tributary stream segment.

010.07D Water quality of acute mixing zones.

The Department may suspend the applicability of all or part of the water quality criteria within an acute mixing zone, except those criteria relating to aesthetics (Chapter 4, 005). In streams designated a recreational use, criteria relating to recreation (Chapter 4, 002) shall also apply within the acute mixing zone. Waters at and beyond acute mixing zone boundaries shall meet all acute water quality criteria associated with the receiving stream any time the receiving streamflow is equal to or greater than 0.1 cfs or its 1-day 10-year low flow.

010.07D1 The pollutant levels or concentrations of wastewaters which contain unknown or complex mixtures of potentially additive or synergistic toxic pollutants shall not exceed 0.3 acute toxic units (TU_a) based on acute bioassays representing the effluent dilution received at the acute mixing zone boundary.

010.07D2 Where more than one wastewater discharge is located in a specific area and the potential exists for additive or synergistic effects, the pollutant levels or concentrations in water from a receiving stream outside any acute mixing zone shall not exceed 0.3 TU_a based on acute bioassays.

010.07D3 Where a mixing zone is not allowed by the Department, the pollutant levels or concentration of the wastewater in the outfall structure itself shall not exceed 0.3 TU_a based on acute bioassays of the undiluted effluent.

010.08 Mixing Zones for Public Drinking Water Supply Criteria.

In waters designated as Water Supplies for Public Drinking Water, the criteria for protection of public drinking water supplies shall not be exceeded at any time outside of a mixing zone for public drinking water supply criteria.

010.08A Mixing zones for public drinking water supply criteria shall be designed to not extend to within a 2 mile zone of influence from any public drinking water supply intake.

010.08B Mixing zones for public drinking water supply criteria shall be located in a receiving stream in such a manner that other beneficial uses will not be adversely affected.

010.08C Water quality of mixing zones for public drinking water supply criteria.

The Department may suspend the applicability of all or part of the water quality criteria for the protection of public drinking water supplies within a mixing zone for public drinking water supply criteria. Waters at and beyond boundaries of mixing zones for public drinking water supply criteria shall meet all public drinking water supply criteria any time the receiving stream is flowing equal to or greater than its 7-day 10-year low flow.

010.09 Outfall Design.

Prior to designating a mixing zone, the Department shall first approve pursuant to Title 123 - Rules and Regulations for Design, Operation, and Maintenance of Wastewater Treatment Works that the best practical engineering design for the outfall structure and its location and placement in the receiving stream have been applied, as necessary, to meet all mixing zone requirements for size, location, and water quality.

010.09A The following are acceptable circumstances for modifying the existing design, location, or placement of an outfall structure in a stream:

010.09A1 Where high-rate diffusers or similar devices are required to: (1) minimize or prevent exposure of aquatic biota to acutely toxic conditions within an acute mixing zone, (2) minimize or prevent exposure of aquatic biota to possible irreversible chronic effects within a mixing

zone where wastewaters tend to attract aquatic organisms, or (3) otherwise expedite mixing and dispersion of wastewaters in order to meet mixing zone requirements for size, location, and water quality.

010.09A2 Where changes are required in the location of an outfall structure (e.g., upstream, downstream, or to the opposite stream bank) or its placement (e.g., water depth, direction in relation to the stream current) in order to meet mixing zone requirements for size, location, and water quality.

010.09B Water turbulence created by high-rate diffusers or similar devices shall not be of such a magnitude that the movement or drift of aquatic biota within a zone of passage is interfered with or prevented.

011 Water quality criteria in Chapters 4 and 7 related to aquatic herbicides or algicides and their effects shall not apply to waters within canals, except those canals designated as segments in Chapter 5, during periods when these chemicals are applied by an irrigation district for the control of aquatic plants.

011.01 All standards shall apply at all times to waters within canals designated as segments in Chapter 5.

011.02 Discharges from canal to other surface waters of the State shall not, at any time, contain herbicides or algicides in amounts which are toxic to aquatic life.

012 Water quality criteria in Chapters 4 and 7 related to aquatic biocides (e.g., ichthyocides, algicides, herbicides) and their effects shall not apply to surface waters during periods when aquatic biocides are applied by an entity responsible for the management of a surface water body under the following conditions:

012.01 Aquatic biocides shall be applied only for the purposes of attaining, maintaining, or enhancing beneficial uses identified in Chapters 4, 5, 6 and 7.

012.02 Application of aquatic biocides shall not cause adverse impacts to any assigned beneficial uses of surface waters beyond the targeted surface water body.

012.03 Application of aquatic biocides must be in accordance with the label restrictions and all applicable federal, state, and local laws or regulations.

012.04 Entities responsible for the management of surface water bodies may include the Nebraska Game and Parks Commission, Natural Resources Districts, U.S. Fish and Wildlife Service, U.S. Forest Service, National Parks Service, U.S. Army Corps of Engineers, city governments, or any other entity responsible for managing the surface water body's assigned beneficial uses.

013 These standards will not apply to:

013.01 Waters below existing hydroelectric plants during periods of approved sluicing activities, provided the hydroelectric plant was operational prior to May 10, 1982. The Department will determine when sluicing activities will be allowed.

013.01A Sluicing activities will be conducted in such a manner as to minimize any harmful effects on assigned beneficial uses.

013.01B Sluicing shall not occur immediately before or during critical reproductive periods of identified key species.

013.01C In the event that the sluicing activity has been determined to have a deleterious impact on the aquatic biota of the State waters, the operator shall pay to the Game and Parks Commission annually the lesser of A., $5000.00, or B., 20% of the annual damages, which is the fair market mitigation to the fisheries resulting from the sluicing activity.

013.02 Waters within canals designated as segments in Chapter 5 during periods of dewatering which are required for or may result from repair, maintenance, inspection, non-diversion periods, force majeure or public safety.

Enabling Legislation: Neb. Rev. Stat. § 81-1505(1)(2)

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